

A new species of the deep-sea genus *Carpoapseudes* Lang from the southwestern Atlantic (Crustacea, Tanaidacea)

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ABSTRACT

A new species, *Carpoapseudes prospectnes*, is described from the South Atlantic off Brazil. This is the first record of this genus from depths above 800 m. The systematic position of the genus is discussed. *Carpoapseudes prospectnes* n. sp. shares many characters with *C. curticarpus* Bacescu, 1982, but can be distinguished from this and all other species in the genus by the presence of an anteriorly directed spine on the basis of pereopod 1 and 2 and by the length of carpus and merus being subequal.

KEY WORDS

Apseudidae,
Carpoapseudes,
new species,
deep-water,
Southwestern Atlantic,
Brazil.

RÉSUMÉ

Une nouvelle espèce du genre *Carpoapseudes* Lang de l'Atlantique sud-occidentale (Crustacea, Tanaidacea).

Une nouvelle espèce, *Carpoapseudes prospectnes*, est décrite de l'océan Atlantique au large du Brésil. C'est la première fois qu'une espèce de ce genre est recensée au-dessus de 800 m de profondeur. La position systématique du genre *Carpoapseudes* est abordée. *Carpoapseudes prospectnes* n. sp. présente plusieurs caractères en commun avec *Carpoapseudes curticarpus* Bacescu, 1982. La nouvelle espèce se distingue de *C. curticarpus*, ainsi que des autres espèces du genre, par la présence, sur le basis des périopodes 1 et 2, d'une épine orientée vers sa partie distale ainsi que par la longueur du carpus similaire à celle du mérus.

MOTS CLÉS

Apseudidae,
Carpoapseudes,
nouvelle espèce,
eaux profondes,
Atlantique sud-occidentale,
Brésil.

INTRODUCTION

The phylogeny of the Apseudomorpha needs revisions and there is much confusion and contradiction in the family level systematics (Lang 1968; Gutu 1972; Gardiner 1973; Sieg 1980; Gutu 1981, Sieg 1984, 1986). The validity and systematic position of subfamilies within the Apseudidae Leach, 1814 and Whitelegiidae Gutu, 1972, has also been subject to controversy (Kudinova-Pasternak 1966; Lang 1968; Gutu 1972; 1980; Lang 1973; Sieg 1986; Gutu 1996a, 1996b). Sieg (1986) placed *Carpoapseudes* Lang, 1968, in the family Whitelegiidae using the leaf-shaped caudo-distal spine (setae) of the maxilliped endite as diagnostic character of the family. Gutu (1972, 1980, 1996a, 1996b), however, considered *Carpoapseudes* to be in a subfamily, the Leviapseudinae Sieg, 1983, within the Apseudidae. Gutu (1996a) considered the spiniform process of the coxa of pereopod 1 (pereopod 2 according to the terminology of Gutu 1972) particularly important. I agree with Gutu (1996a) that the shape of the caudo-distal maxilliped setae is not enough to be the only diagnostic character of a family. No other characters combine the genera of Whitelegiidae with the genera of Leviapseudinae on the contrary. The antennae are short and broad in Whitelegiidae, long and slender in Leviapseudinae. The pleotelson are comparatively shorter in Whitelegiidae, elongated in Leviapseudinae. Visual elements are present in Whitelegiidae, absent in Leviapseudinae. Habitat preferences is shallow water in Whitelegiidae, deep water in Leviapseudinae. The maxilliped palp is serrated in Whitelegiidae, not in Leviapseudinae. Furthermore if one consider the amount of specially shaped setae within the Apseudomorpha, it is not unreasonable to suggest that the leaf-shaped setae of Leviapseudinae and Whitelegiidae, have evolved independently. However, a revision of the apseudomorphan systematics is not within the scope of this work. The Leviapseudinae is here placed within the Apseudidae but no phylogenetic analysis have been made to support this.

The diagnosis of *Carpoapseudes* has recently been modified (Gutu 1996c) in order to accommodate the species *C. curticarpus* Bacescu, 1982,

rather than erecting a new genus for this species. *Carpoapseudes curticarpus* would otherwise have to be excluded due to a short pereopod 1 carpus, one of the diagnostic character of *Carpoapseudes* is a long carpus relative to the merus (note that the terminology of Sieg 1977 is used in this work). Gutu (1996c) reasoned that all other characters of *C. curticarpus* corresponded to *Carpoapseudes* and that it was possible that other species would be found in the future justifying his action. *Carpoapseudes prospectnes* n. sp., described herein, seems to do just that, with a pereopod 1 carpus subequal to merus.

Carpoapseudes is generally considered a deep-sea genus with most species living at abyssal depth (Lang 1968; Bacescu 1982; 1985; Sieg 1983). Only *C. serratispinosus* Lang, 1968, has previously been reported above 1000 m.

In the description of *Carpoapseudes prospectnes* the body characteristics are from male holotype and appendages from female paratypes, unless otherwise stated. The type material is deposited in the Museu Nacional, Rio de Janeiro (MNRJ), the Muséum national d'Histoire naturelle, Paris (MNHN), and Universidade Santa Úrsula, Rio de Janeiro (USU).

ABBREVIATIONS

Stn	station;
CB	Blake trawl;
DC	Charcot dredge;
bl	body length.

SPECIMENS AND STATION DATA FOR THE MATERIAL EXAMINED IS AS FOLLOWS

For a map showing location of the oceanographic stations conducted by the *Marion Dufresne* in southeastern Brazil, see Tavares 1999.

Stn 42 DC75, 18°59'S, 37°50'W, 295 m, *Carpoapseudes prospectnes* n. sp.; stn 53 CB93, 19°34'S, 38°55'W, 360 m, *Carpoapseudes prospectnes* n. sp.

Family APSEUDIDAE Leach, 1814
Subfamily LEVIAPSEUDINAE Sieg, 1983

DIAGNOSIS — Ocular lobes well defined, extending on each side as a spiniform process, without visual elements. Cheliped and pereopod 1 with exopod.

Pereonites 4 and 5 longest. If present pleopod exopod 2 articulated. Maxilliped endite with caudo-distal leaf-shaped robust seta.

Genus *Carpoapseudes* Lang, 1968

Carpoapseudes Lang, 1968: 60, 61; 1970: 596, 599, 602-604. — Bacescu & Gutu 1971: 64. — Gutu 1972: 298, 302; 1975: 93; 1980: 385-388, 390, 391. — Kudinova-Pasternak 1973: 147; 1978: 1159. — Lang 1973: 226. — Gardiner 1975: 224. — Bacescu, 1981: 69; 1982: 55, 63, 66-68; 1985: 435, 438; 1987: 30. — Sieg 1983: 163, 164.

TYPE SPECIES. — *Carpoapseudes serratispinosus* Lang, 1968 [by original designation. Gender, masculine].

DIAGNOSIS. — Pereonite 6 trapeze-shaped and clearly wider than long. Five pairs of pleopods present. Pleotelson and mandibles without chelipeds with sexual dimorphism. Depth range 295-4364 m.

Carpoapseudes prospectnes n. sp. (Figs 1-7)

MATERIAL EXAMINED. — TAAF MD55/Brazil 1987, *Marion Dufresne*, stn 42 DC75, 18°59'S, 37°50'W, 295 m, 27.V.1987, ♂ holotype bl 15.7 mm (MNRJ-7304). — 1 ovigerous incomplete ♀ paratype, mouthparts and limbs dissected (MNHN Ta884), 1 ♀ paratype (USU 486). — Stn 53 CB93, 19°34'S, 38°55'W, 360 m, 30.V.1987, 1 ♂ bl 15.2 mm (USU 487).

TYPE LOCALITY. — Off coast of Brazil, 18°59'S, 37°50'W, 295 metres depth.

ETYMOLOGY. — Named in anticipation of achieving new data from the South Atlantic Ocean (*prospectnes*, noun of prospecto: to look forward to).

DIAGNOSIS. — Rostrum with short processes at base. Maxilliped endites inner margins with seven circumplumose spiniform setae, right endite with five coupling hooks, left endite with four coupling hooks. Pereopod 1 & 2 basis with anterior directed proximal spine. Pereopod 1 propodus with four spiniform setae. Pereopod 4 dactylus not serrated. Well-developed pleopods present.

DESCRIPTION

Body cylindrical (Fig. 1A, B). Cephalothorax length (including rostrum) as pereonites 1-3 together. Ocular lobes long and curved. Small round process mid-length. Small hyposphenians lateral at

level with mandibles and on the ventral surface. Pereonites 1-5 with ventral hyposphenians. Pereonites 3-5 with hyposphenians anterior of pereopod shoulders. Pereonite 1 as wide as cephalothorax, half as long as pereonite 2. Pereonite 2 slightly narrower than pereonite 1, half as long as pereonite 4. Pereonite 3 0.75 length of pereonite 4 but marginally wider. Pereonite 4 longer than pleonite 1-4 together. Pereonite 5 0.1 longer than pereonites 3. Pereonite 6 as long as pereonite 2. Genital cone directed forwards, with posterior spine.

Pleonites tapering in width distally. All of same length. Pleotelson longer than all five pleonites together, widening distally.

Antennule (Fig. 2A) longer than carapace. Peduncular article 1 longer than two succeeding articles combined; article 2 with distal ring of plumose setae and marginally longer than third article. Inner flagellum with 13 articles, most of which have distal setae. Outer flagellum marginally longer than peduncle, with about 26 articles most of which have distal setae.

Antenna (Fig. 2B) less than two thirds of antennule length. Peduncular article 1 with ventral process, one third of article 2 length; article 2 only two thirds article 1 width. Inner flagellum of one article only, more than half the length of peduncular article 2, with 12 simple setae. Outer flagellum with 16 articles, article 1 being the shortest, article 2 and 3 each three times longer than all other articles and both bearing plumose setae.

Labrum (Fig. 3A) basal part with long fine lateral setules, distal part consisting of two small lobes. Mandibles (Fig. 3B, C) with broad molar process, longer than incisor, without obvious indentations; palp with three articles, the two distal articles with distal row of serrated setae. Left mandible: lacina mobilis with four denticles, incisor with three denticles, spine row consists of two bifurcate and two distally serrated setae. Right mandible: lacina mobilis with five denticulations, spine row consisting of two bi-, one trifurcate and three distally serrated setae, the most distal being stouter than others. Maxillule (Fig. 3D) palp with two articles, distal article with nine simple setae; outer endite with 11 spiniform setae some simple others serrated; inner

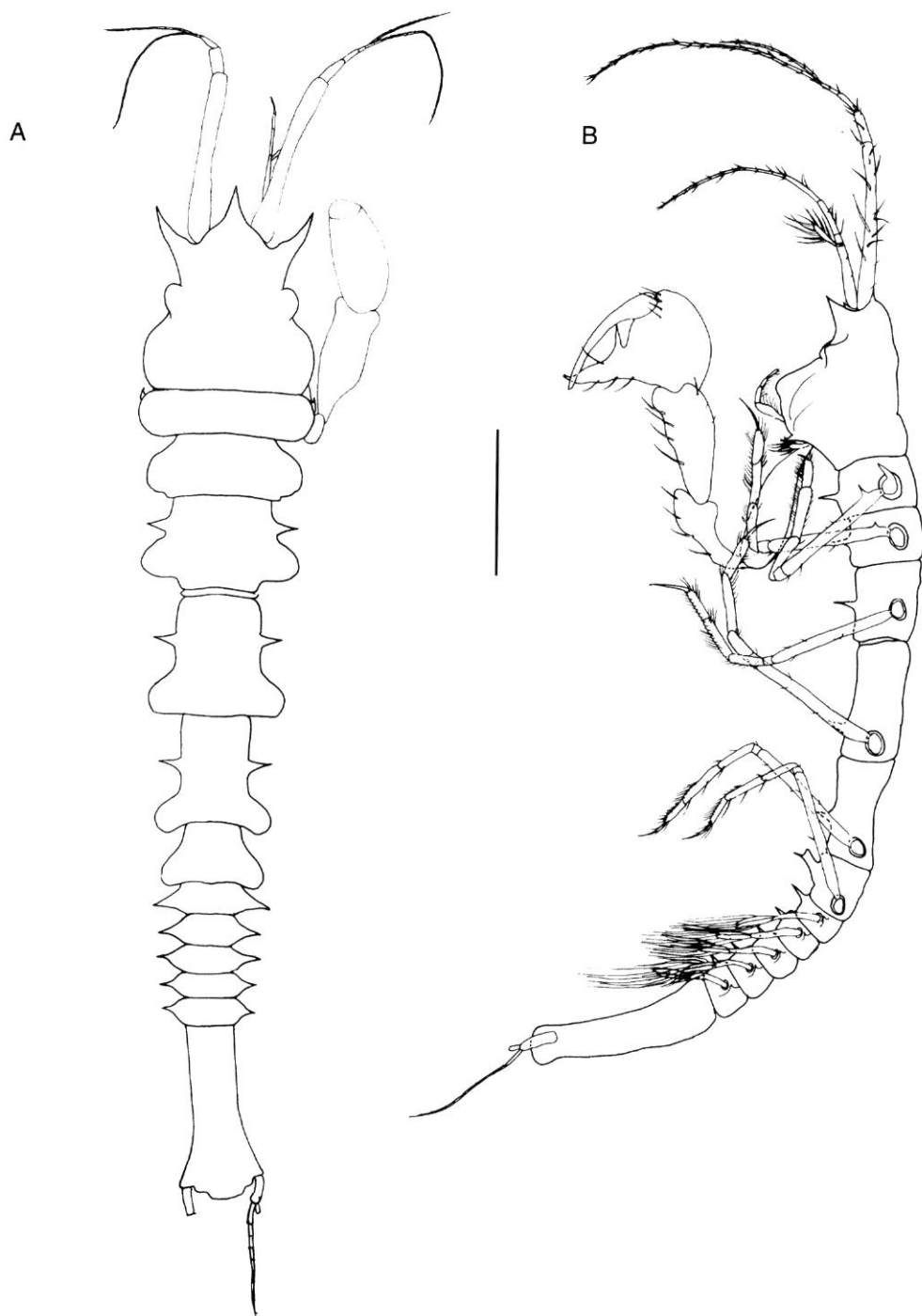


FIG. 1. — *Carpoapseudes prospectnes* n. sp.; A-B, ♂ holotype (MNRJ-7304); A, dorsal view; B, lateral view. Scale bar: 2 mm.



FIG. 2. — *Carpoapseudes prospectus* n. sp.; A-D, ♀ paratype (MNHN Ta884); **A**, antennule; **B**, antenna; **C**, pleopod 1. **D**, uropod. Scale bars: A-B, D, 1 mm; C, 0.5 mm.

endite with five circumplumose spiniform setae. Maxilla (Fig. 3E) consisting of three lobes and inner process, outer lobe with distally serrated setae; median lobe with simple as well as serrated spiniform setae; inner lobe with simple and bifurcate spiniform setae; inner process with distally setulose or bifurcate setae. Labium (Fig. 4B) basal part setulose on anterio-lateral corners and small setulose projection on distal margin, lobes densely setose on each margin and with two distal setae. Maxilliped (Fig. 4A) coxa narrower than basis; basis wider than endites, with antero-lateral projections; palp article 1 with one seta on outer margin, article 2 wider and longer than other articles, with dense row of setae on inner margin, article 3 hearts shaped with inner row of long thick setae, article 4 elongate, with long thick distal setae; endites with seven medio-lateral circumplumose spiniform setae, five anterolateral bifurcate spiniform setae, leaf-shaped caudo-distal spiniform seta and several simple setae on distal margin, anterolateral corners with fine setules. right endite inner margin with five proximal denticulated spiniform setae, left endite inner margin with four proximal denticulated spiniform setae.

Basis of female cheliped endopod (Fig. 4C) longer than carpus, with scattered fine setules. Merus slightly bent, widening distally with two distal tergal setae and nine sternal setae and large process on sternal margin. Carpus tapering proximally with long setae on sternal margin, distal spine and small setae on tergal margin. Propodus with distal tergal row of diagonal setae. Fixed finger (Fig. 4D) three times longer than rest of propodus and slightly longer than dactylus, with seven sternal setae, inner margin with numerous denticles and setae and a proximal process. Dactylus with fine serration on inner margin. Exopod (Fig. 7D) consist of two articles, distal article with four setae.

Male cheliped (Fig. 7A) differing from female in basis stout; carpus widening distally, distal spine less acute; propodus more powerful; fixed finger (Fig. 7B) inner margin having three stout setae and proximal process three times larger than female; dactylus with two small setae proximally on outer margin and small process proximally on inner margin.

Oostegites present on pereonites 1-4.

Coxa of pereopod 1 endopod (Fig. 5A) with generic forward pointed process. Basis marginally shorter than merus and carpus together, with large sternal proximal spine and one distal tergal seta. Ischium with one distal tergal seta. Merus only 0.15 time shorter than carpus, with row of setae along tergal margin and three setae distally on sternal margin. Carpus 0.5 time length of basis, both margins with dense row of long setae, tergal margin also with two spiniform setae. Propodus three times length of dactylus, both margins with dense row of long setae, tergal margin also with four spiniform setae and one distal serrated spiniform seta. Dactylus serrated, five times longer than terminal spine and with four sternal setae and two setae at insertion of terminal spine. Exopod (Fig. 7C) consist of two articles, the distal with six plumose setae.

Pereopod 2 (Fig. 5B) shorter and more slender than pereopod 1. Basis marginally longer than merus and carpus together, sternal spine smaller than basis of pereopod 1. Ischium with three distal tergal setae. Merus 0.6 time length of carpus, with row of setae on tergal margin. Carpus with row of setae along tergal margin and three setae distally on sternal margin. Propodus shorter than dactylus and terminal spine together, tergal margin with dense row of long setae but no spiniform setae, sternal margin with five setae. Dactylus almost twice the length of terminal spine, with a cluster of four sternal setae; terminal spine with two proximal setae.

Pereopod 3 (Fig. 5C) similar to pereopod 2 except basis without sternal spine; merus with one seta on sternal margin; propodus have both margins with dense row of long setae; dactylus with one proximal tergal, one medial sternal and one distal setae, terminal spine smooth.

Pereopod 4 (Fig. 6A) similar to pereopod 3 except basis with plumose setae on each margin; merus short only 0.25 time length of carpus; carpus with dense setation on both margins and one median plumose seta; propodus with dense setation on tergal margin only; dactylus only half as long, terminal spine only one third as long.

Pereopod 5 (Fig. 6B) similar to pereopod 3 except basis with plumose setae on each margin; ischium with seta on tergal margin; merus with

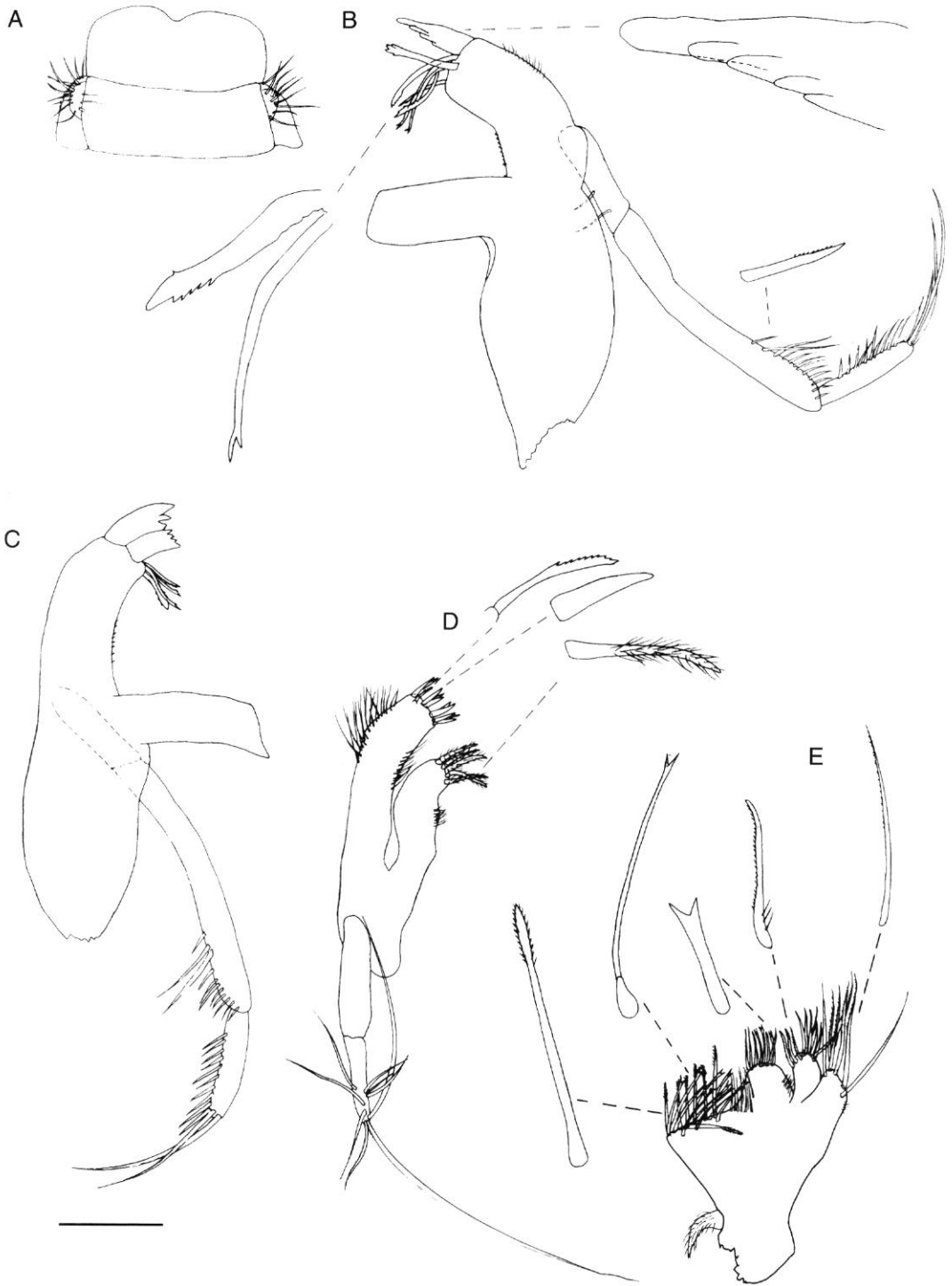


FIG. 3. — *Carpoapseudes prospectus* n. sp.; A-E, ♀ paratype (MNHN Ta884); A, labrum; B, right mandible; C, left mandible; D, maxillule; E, maxilla. Scale bar: 0.1 mm.

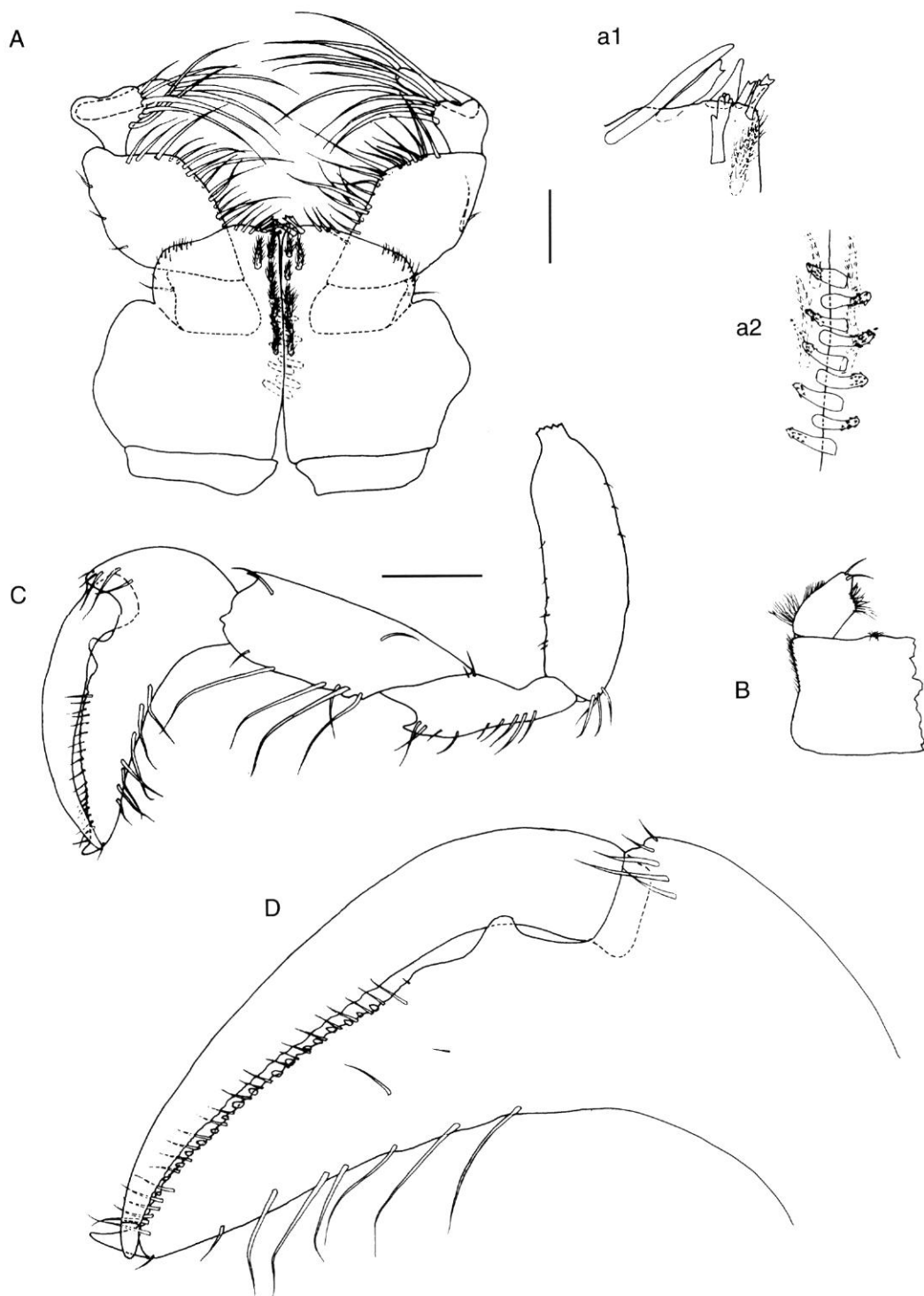


FIG. 4. — *Carpoapseudes prospectnes* n. sp.; A-D, ♀ paratype (MNHN Ta884); A, maxilliped; a1, caudo-lateral corners of endites, a2, caudo-medial margins of endites; B, labium; C, cheliped; D, cheliped propodus and dactylus. Scale bars: A, 0.1 mm; C, 1 mm.

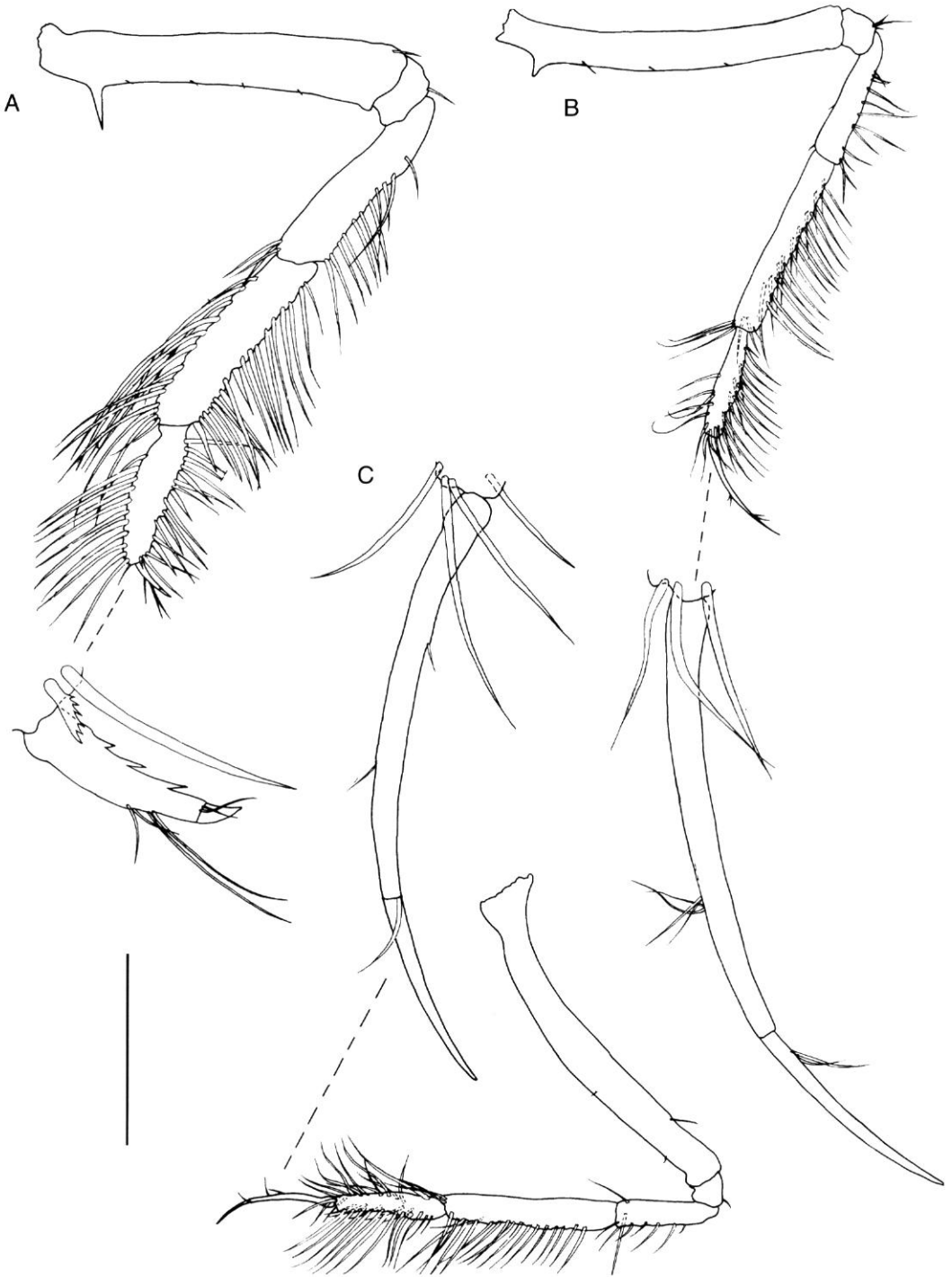


FIG. 5. — *Carpoapseudes prospectus* n. sp. A-C, ♀ paratype (MNHN Ta884); A, pereopod 1; B, pereopod 2; C, pereopod 3. Scale bar: 1 mm.



FIG. 6. — *Carpoapseudes prospectus* n. sp. A-C, ♀ paratype (MNHN Ta884); A, pereopod 4; B, pereopod 5; C, Pereopod 6. Scale bar: 1 mm.

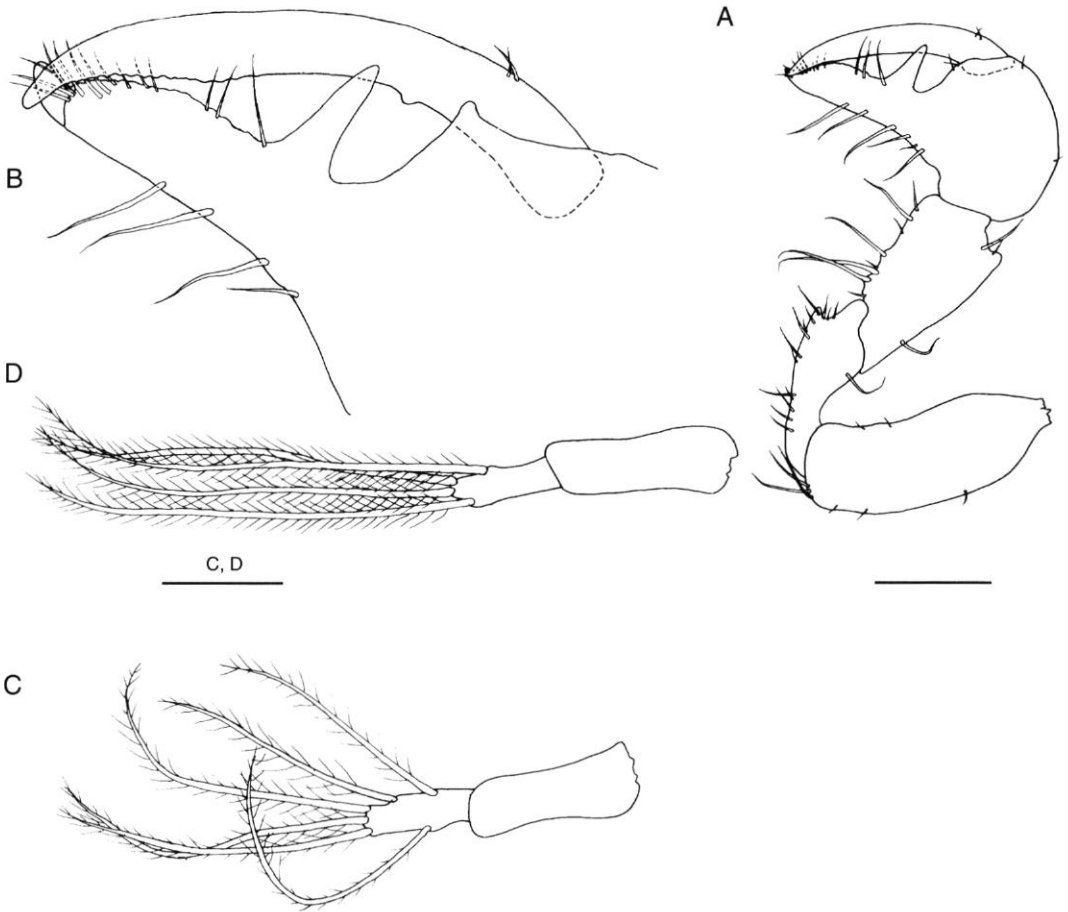


FIG. 7. — *Carpoapseudes prospectnes* n. sp. A-B, ♂ paratype (USU 487); A, cheliped; B, cheliped propodus and dactylus; C-D, ♀ paratype (MNHN Ta884); C, pereopod 1 exopod; D, cheliped exopod. Scale bars: A, 1 mm; C-D, 0.1 mm.

only scattered setae; carpus with two large setae on sternal margin; propodus with tergal row of small setulose spiniform setae, only one seta on tergal margin and five distal setae.

Pereopod 6 (Fig. 6C) similar to pereopod 3 except merus with one long plumose seta on sternal margin; carpus with one long plumose seta on sternal margin; propodus with one small plumose seta on sternal margin and row of diagonal smooth and setulose spiniform distal setae; dactylus with small sternal spine.

All five pairs of pleopods similar (Fig. 2C). Protopod with four plumose setae; exopod article 1 with one feather seta, article 2 with 17 feather setae; endopod, armed with 19 feather setae.

Uropods protopod smooth (Fig. 2D). Endopod with 33 articles most of which have setae. Exopod broken off.

REMARKS

Carpoapseudes prospectnes is similar in body shape to *C. curticarpus* from the north-east Atlantic. These two species can be separated by the following: *Carpoapseudes prospectnes* have spines on the basis of both pereopod 1 and 2, cheliped merus with sternal process, cheliped fixed finger with proximal process, carpus and merus are subequal in length and lateral spines on pleonites pointing straight out. For *C. curticarpus* only pereopod 1 has spine on basis, cheliped merus

without sternal process, cheliped fixed finger without proximal process, carpus only 0.75 length of merus and lateral spines on pleonites pointing backwards. In the original description of *C. curticarpus*, Bacescu (1982) must have reversed the labels for pereopod 1 of *C. curticarpus* and *C. laubieri* Bacescu, 1982.

Carpoapseudes contain at present 14 species, many of which are incompletely described. A key to the genus has been constructed by Gutu (1996c).

Regarding sexual dimorphism of *Carpoapseudes prospectines* n. sp., only the cheliped and the fixed finger display significant variation between the sexes.

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